

**UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

**Bombardier Aerospace**

for an exemption from § 25.785(b) of  
Title 14, Code of Federal Aviation Regulations

**Regulatory Docket No. FAA-2002-13385**

**GRANT OF EXEMPTION**

By letter dated September 30, 2002, Rod Iverson, Bombardier Aerospace Completion Center Engineering, Tucson Completion Center, P.O. Box 11186, Tucson, Arizona 85734-1186, petitioned for an amendment to Exemption 7120A, previously issued on November 17, 2000. That exemption had granted Bombardier certain relief from the general occupant protection requirements of Title 14 Code of Federal Regulations (14 CFR) 25.785(b) for persons occupying multiple-place side-facing seats during takeoff and landing on BD700-1A10 airplanes. The petitioner now requests that the Federal Aviation Administration (FAA) amend Exemption 7120A to allow non-private use operation of the airplane.

**The petitioner requests relief from the following regulation:**

Section 25.785(b) requires general occupant protection for occupants of multiple-place side-facing seats that are occupied during takeoff and landing.

ANM-03-015-E

**The petitioner's supportive information is as follows:**

“Background:

“FAA Exemption No. 7120A was issued for side-facing divans installed aboard the Bombardier Aerospace BD700-1A10 Global Express aircraft on November 17, 2000. The exemption granted certain relief to the FAR requirements of 14 CFR part 25.785(b) for occupants of multiple place side-facing seats during takeoff and landing. Bombardier demonstrated compliance to all elements of the exemption and subsequently the FAA approved Supplemental Type Certification's on numerous BD700-1A10 aircraft. Today over sixty Bombardier customers have side-facing divan installations in service on their aircraft. The side-facing divan installations are popular with our customers and a majority of the Global Express aircraft in the completion cycle and those being sold to customers will go into service with one or more side-facing divan assemblies.

“The issue:

“Bombardier received a 16G side-facing divan exemption #7884 from your office this month for our BD100 Continental Jet that contained a time limit but did not have an operational limitation. The exemption issued to Bombardier for side-facing divans on the BD700-1A10 Global Express aircraft two years ago has both a time limit and an operational limit. The removal of the operational restriction would support the needs of many of the Bombardier Global Express customers. Their type of on-demand operation will benefit greatly when permitted to use HIC compliant side-facing divans for taxi, takeoff and landing as the airplane is operated for hire, or offered for common carriage revenue passenger service (part 135 operation).

“Bombardier's 7120A amendment request:

“Bombardier requests that the FAA approve an amendment to 7120A that deletes all reference contained in this document to the operational limitation for BD700-1A10 aircraft equipped with 16G side-facing divans. We expect that the structural testing and installation requirements listed in the exemption text would remain unchanged since they are considered to be at par with the current FAA safety standards for side-facing seats. It is also understood that the exemption time limit of January 1, 2004 would not be changed at this time.

“Bombardier Aerospace Group is a major international corporation, which provides business aircraft to an international market. They manufacture principally in Canada and in the U.S.A. and therefore employ a large staff in both countries. The aircraft manufactured by Bombardier are equipped with avionics and other specialized systems and equipment manufactured in North America.

The business provides competition to manufacturers in Europe and elsewhere, and maintains a considerable employment in North America. With the growing numbers of Transport Category corporate aircraft predicted and the stabilizing effect their manufacture and support has on the job market, it is definitely in the public interest of both countries.

“To expedite approval for our part 135 customers we respectfully request the FAA consider waiving the Federal Register comment period.”

**The FAA’s finding concerning notice and public comment is as follows:**

The FAA finds, for good cause, that action on this petition should not be delayed by publication and comment procedures for the following reasons:

1. A grant of exemption would not set a precedent.
2. Delay in processing the exemption could have an adverse effect on the petitioner and its customers.

**The FAA’s analysis/summary is as follows:**

Exemption No. 7120A was granted to Bombardier Aerospace with a limitation that restricted the airplane from being operated for hire or offered for common carriage. The petitioner has requested that this limitation be removed.

Side-facing seats are considered a novel design for transport category airplanes that include Amendment 25-64 in their certification bases, and were not considered when those airworthiness standards were promulgated. Hence, the existing regulations do not provide adequate or appropriate safety standards for occupants of multiple-place side-facing seats. The FAA has been conducting research to develop an acceptable method of compliance with § 25.785(b) for multiple-place side-facing seat installations. Without an acceptable method of compliance available, the FAA finds that it is in the public interest to grant a time-limited exemption without an operating limitation to the petitioner for BD700-1A10 airplanes.

The FAA will grant an exemption that will cover only airplanes that are manufactured for a specific amount of time. For the purposes of this exemption, the “date of manufacture” is the date on which inspection records show that an airplane is in a condition for safe flight. This is not necessarily the date on which the airplane is in conformity with the approved type design, or the date on which a certificate of airworthiness is issued. It could be earlier, but would be no later, than the date on which the first flight of the airplane occurs.

In consideration of the foregoing, I find that an amendment to Exemption No. 7120A is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in § 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, Bombardier Aerospace is hereby granted an amendment to Exemption No. 7120A to remove the limitation that prohibits an airplane from being offered for common carriage or operated in revenue passenger service. This exemption is applicable to Bombardier Aerospace BD700-1A10 airplanes manufactured prior to January 1, 2004.

All other limitations of Exemption No. 7120A apply to this exemption. These limitations are provided below and must be documented as operating limitations in the limitations section of the Airplane Flight Manual:

1. Existing Criteria: All injury protection criteria of § 25.562(c)(1) through (c)(6) apply to the occupants of side-facing seating. The Head Injury Criterion (HIC) assessments are only required for head contact with the seat and/or adjacent structures.
2. Body-to-Body Contact: Contact between the head, pelvis, or shoulder area of one Anthropomorphic Test Dummy (ATD) with the adjacent seated ATD's is not allowed during the test conducted in accordance with § 25.562(b)(1) and (b)(2). Incidental contact of the legs, feet, arms, and hands that will not result in incapacitation of the occupants is acceptable. Any contact between adjacent ATD's is acceptable during rebound.
3. Body-to-Wall/Furnishing Contact: If the seat is installed aft of a structure, such as an interior wall or furnishing, that would contact the pelvis, upper arm, chest, or head of an occupant seated next to the structure, then a conservative representation of the structure and its stiffness must be included in the tests. In most cases, the representation of the structure would be more rigid and have less deflection under load than the actual installation on the airplanes.
4. Thoracic Trauma: Thoracic Trauma Index (TTI) injury criteria must be less than 85, as defined in 49 CFR part 572, subpart F. Thoracic trauma index data must be processed as defined in Federal Motor Vehicle Safety Standard (FMVSS), part 571.214, section S6.13.5.
5. Pelvis: Pelvic lateral acceleration must not exceed 130g. Pelvic acceleration data must be processed as defined in FMVSS, part 571.214, section S6.13.5.
6. Shoulder Strap Loads: Where upper torso straps (shoulder straps) are used for sofa occupants, the tension loads in individual straps must not exceed 1,750 pounds. If dual straps are used for restraining the upper torso, the total strap tension loads must not exceed 2,000 pounds.

7. Seat Positions: All seat positions need to be occupied by ATD's for the longitudinal tests.
8. Occupant Retention: All side-facing seats require end closures or other means to prevent the occupant from translating off of the seat.
9. Longitudinal Tests: For the longitudinal tests conducted in accordance with the conditions specified in § 25.562(b)(2), a minimum number of tests will be required as follows:
  - a. One test will be required with ATD's in all positions, with undeformed floor, 10 degrees yaw, and with all lateral supports (armrests/walls). For configurations with a wall or bulkhead immediately forward of the forward seat position on the sofa, a SID (or other suitable) ATD will be used in the forward seat position and a Hybrid II ATD(s) or equivalent will be used for all other seat locations. For configurations without a wall or bulkhead immediately forward of the forward seat, Hybrid II ATD's or equivalent will be used in all seat locations.
  - b. One test will be required with Hybrid II ATD's, or equivalent, in all positions, with deformed floor, 10 degrees yaw, and with all lateral supports (armrests/walls). This could be considered the structural test, as well.
10. Vertical Test: For the vertical test, conducted in accordance with the conditions specified in § 25.562(b)(1), Hybrid II ATD's or equivalent will be used in all seat positions.

Note: The FAA has assigned a new docket number to this project (Docket No. FAA-2002-13385; previously Docket No. 29820). In an effort to allow the public to participate in tracking the FAA's rulemaking activities, we have transitioned to the Department of Transportation's Internet-accessible Docket Management System, located at <http://dms.dot.gov>. The new system enables interested parties to view and download docketed material through the Internet. Please submit any future exemption requests to the Docket Management System in accordance with 14 CFR 11.63.

Issued in Renton Washington, on December 23, 2002.

/s/

Charles Huber  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service

